

2006 Revegetation Monitoring

Introduction

The Rocky Flats Site (Site), a U.S. Department of Energy facility, is located near Golden, Colorado. For nearly 40 years during the Cold War, the Site was an integral part of the United States nuclear weapons program, producing nuclear weapons components. In the early 1990s the Site was shut down and cleanup and closure activities began. As part of the cleanup and closure of the Site, the buildings, roads, and other infrastructure in the Industrial Area were removed. Approximately 650 acres were disturbed during cleanup activities that were completed in fall 2005. Revegetation of the disturbed areas was conducted to prevent erosion and sedimentation of the Site streams and to meet water quality standards. Re-establishment of native plant species is desirable to benefit wildlife and the future of the Site as a National Wildlife Refuge. As part of the revegetation process, monitoring is conducted to determine whether success criteria, as stated in the Rocky Flats, Colorado, Site Revegetation Plan (Revegetation Plan; DOE 2005) are being met as well as to determine whether management of these resources are needed. This report summarizes the revegetation monitoring results for data collected during 2006. The objective of the revegetation monitoring in 2006 was to assess the successfulness of the revegetation efforts at selected locations.

Methods

Semi-quantitative revegetation monitoring was conducted during late summer to evaluate the establishment of vegetation at revegetation locations across the Site. The monitoring methodology provided in the Revegetation Plan was used with some modification. The revegetation areas were divided into “units” or areas based on geographic features (i.e., roads, streams) or previous building areas (i.e., 700 Area, 400 Area). A total of 25 revegetation units were sampled (Figure 1). Within each revegetation unit, sample locations were randomly generated in the Geographic Information System (GIS) and then located on the ground using a Geographic Positioning System (GPS) for monitoring. Quadrats (0.5 m^2 ; 50 cm × 100 cm) were used to sample the vegetation. Dependent on the size of the area, the number of quadrats sampled in each area varied from 10 to 30 quadrats. A total of 480 quadrats were sampled in 2006. Table 1 lists the number of quadrats sampled in each unit. At each quadrat, both species richness and species cover were sampled. A species was listed as present for a quadrat if any part of the plant was located within or overhung inside the quadrat boundary. Cover was estimated for each species using the following cover class system and midpoints: 1 = <5% (2.5%), 2 = 6-25% (15%), 3 = 26-50% (37.5%), 4 = 51-75% (2.5%), 5 = 75-95% (85%), 6 = >95% (97.5%).

Species lists were generated for each revegetation unit by combining all the quadrat data for that unit. Foliar cover by species was averaged across all the quadrats sampled for each revegetation unit. Foliar cover data are reported as the percent absolute cover and percent relative cover for each species encountered. The percent absolute foliar cover was calculated as the sum of all cover values for a species in a revegetation unit divided by the number of quadrats sampled in that unit. Relative foliar cover was calculated as the sum of all cover values for a species in a revegetation unit divided by the sum of all cover values for all species in the same revegetation unit, multiplied by 100.

Results and Discussion

Species richness across all sampled revegetation units is presented in Table 2. Species richness in 2006 at the revegetation units ranged from a low of nine species in unit A10 to 39 species at unit A22. The wide range of in the number of species present in each revegetation unit is attributable to a number of factors including: how long ago the area was revegetated, the size of the unit, the number of quadrats sampled in the unit, and what management actions (i.e., weed control) have been conducted in the area. A total of 13 seeded graminoid species had established and were growing at some or all locations in 2006 (shaded rows in Table 1). Two species, western wheatgrass (*Agropyron smithii*) and slender wheatgrass (*Agropyron caninum* = *Agropyron trachycaulum*) were established at all 25 locations. As would be expected in a revegetation project many other early successional species were growing at most of the areas. Kochia (*Kochia scoparia*), Russian thistle (*Salsola iberica*), wild lettuce (*Lactuca serriola*), yellow sweet clover (*Melilotus officinalis*), and hoary vervain (*Verbena bracteata*) were among the more common. These will largely disappear on their own over the next couple of years as the seeded species begin to fill in more. Several noxious weeds also occurred in the revegetation areas. The most common of these were diffuse knapweed (*Centaurea diffusa*), fillaree (*Euroodium cicutarium*), and downy brome (*Bromus tectorum*). Weed management will be conducted as needed to keep noxious weed populations down in the revegetation areas, so that the desired seeded species can establish more quickly and help compete with the weeds.

Slightly different seed mixes were used at the different locations depending on the year they were seeded and the slope position. One of the success criteria in the Revegetation Plan (DOE 2005) states that at least 50% of the seeded species must be present in an area for it to be considered successful. Table 3 lists the location, number of seeded species, number of species present at the location, and percentage present at the location in 2006. Fifteen locations had 50% or more seeded species present in 2006 and have thus meet this success criterion. The drought conditions experienced during 2006 may have limited the amount of germination of seeded species at the other locations. When normal precipitation returns it is expected that additional species should germinate and establish at the locations.

Ground cover protection from rock, litter, and current year live vegetation varied from 40% to over 100% at the revegetation locations in 2006 (Table 4). The occasional values over 100% are a result of the cover class system used for estimating cover which estimates cover values into a range and uses the midpoint of the cover class for analysis. Another success criterion outlined in the Revegetation Plan (K-H 2005), states a minimum of 70% total ground cover comprised of litter cover, current year live vegetation basal cover, and rock cover is to be present to help prevent erosion. Fourteen locations met this criteria in 2006. At each of the locations most of the cover came from rock. In time the dominant ground cover will shift from rock to litter as dead plant matter falls to the ground at the end of each growing season and builds up over time, covering and protecting the soil even more.

A third success criterion outlined in the Revegetation Plan (DOE 2005), states that a minimum of 30% relative cover of desired species must be present and a forth criterion states that no single species comprise more than 45% of the total relative cover. Tables 5 to 9 summarize the foliar cover data by location for 2006. The shaded row titled Total Native Cover represents the percentage of desired species at each location. The relative cover values at individual locations that are higher than 30% are shaded, indicating these locations have met this success criterion.

Total relative vegetation cover of desired (native) species was greater than 30% at 19 of the 25 locations in 2006. Only two of the 25 revegetation locations had a single species that comprised greater than 45% of the relative cover at the location, A10 and A19. At each of these locations 49% of the cover came from slender wheatgrass, one of the early successional seeded native species. Thus all locations except A10 and A19 met this latter success criterion. The dominant species across all sites in 2006 were slender wheatgrass, western wheatgrass, wheat (*Triticum aestivum*), kochia, and yellow sweetclover.

Table 10 presents a summary of the pass/fail criteria for each revegetation location monitored in 2006. Eight of the locations passed all four criteria in 2006. It is not unexpected that most failed at this point in time, as it often takes 5 or 6 years to establish a good stand of vegetation. It should also be remembered that the success criteria listed in the Revegetation Plan are an initial set of criteria established primarily for erosion protection. As stated in the Revegetation Plan, these "...criteria are provided as initial guidance; however, common sense combined with scientific data will need to be applied to final evaluations to determine whether further management actions are required at specific locations." It should also be noted that the success criteria listed in the Revegetation Plan were taken from the Rocky Mountain Arsenal (RMA) National Wildlife Refuge Habitat Restoration Plan (USFWS 1999) and are the criteria that is used at the RMA. So although some of the areas passed each of the criteria listed in the Revegetation Plan, this does not mean that the vegetation has established to a desirable level at these locations as of 2006. Additionally, some of the revegetation locations may require some reseeding and weed control. The drought experienced in 2006 also limited the amount of vegetation growth observed this year. Normal precipitation amounts should result in increased vegetation growth in future years. Proactive management of the revegetation areas is critical to success. These data provide useful information for making management decisions and provide documentation of the successional changes at the revegetation locations that can then be used to help improve revegetation techniques at the Site.

Summary

Monitoring was conducted at 25 revegetation monitoring areas at the Site during 2006. Results indicate that the vegetation has begun growing at all the revegetation locations, but is in the early stages of establishment. Ground cover from vegetation, rock, and litter (including erosion controls) is protecting the soil from erosion. The drought in 2006 limited vegetation establishment and growth, but as normal precipitation amounts return it is expected that vegetation will continue to increase and ultimately provide good vegetation stands at these locations. Eight of the monitored locations met all four success criteria listed in the Revegetation Plan. Continued management of the revegetation areas will be conducted to help control undesirable species and assist in the establishment of desired species.

References

DOE, 2005. *Rocky Flats, Colorado, Site Revegetation Plan*, U.S. Department of Energy, Office of Legacy Management, Grand Junction, Colorado, December.

USFWS, 1999. *Rocky Mountain Arsenal (RMA) National Wildlife Refuge Habitat Restoration Plan*, Rocky Mountain Arsenal National Wildlife Refuge, U.S. Department of the Interior, Commerce City, Colorado.

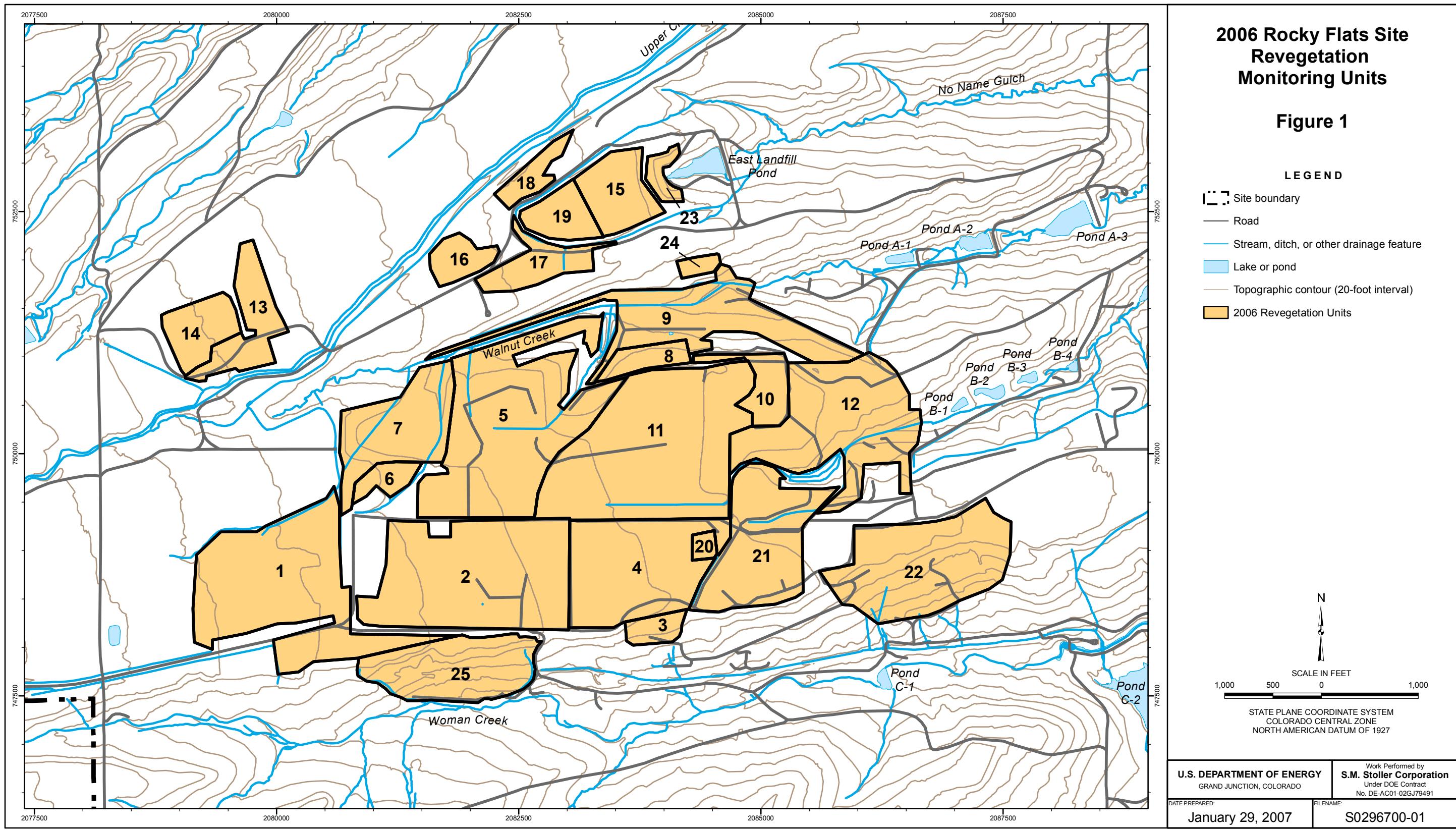


Table 1. 2006 Revegetation Location Sample Sizes

Location	Number of Quadrats Sampled
A1	30
A2	30
A3	10
A4	30
A5	30
A6	10
A7	30
A8	10
A9	30
A10	10
A11	30
A12	30
A13	10
A14	10
A15	15
A16	10
A17	10
A18	10
A19	15
A20	10
A21	30
A22	30
A23	10
A24	10
A25	30
Total	480

Table 2. Species Richness Summary at Locations A1 - A25

Family	Scientific Name	Speccode	Native	Noxious Weed	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25
AMARANTHACEAE	<i>Amaranthus albus</i> L.	AMAL2	N													X													
ASCLEPIADACEAE	<i>Asclepias speciosa</i> Torr.	ASSP1	Y																							X			
ASTERACEAE	<i>Ambrosia artemisiifolia</i> L.	AMAR1	Y		X		X														X	X			X				
ASTERACEAE	<i>Ambrosia psilostachya</i> DC.	AMPS1	Y											X	X						X		X	X	X	X			
ASTERACEAE	<i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michx.) Hall & Clem.	ARCA1	Y																	X				X					
ASTERACEAE	<i>Artemisia frigida</i> Willd.	ARFR1	Y																						X				
ASTERACEAE	<i>Aster porteri</i> Gray	ASPO1	Y										X								X								
ASTERACEAE	<i>Carduus nutans</i> L. ssp. <i>macrolepis</i> (Peterm.) Kazmi	CANU1	N	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
ASTERACEAE	<i>Centaurea diffusa</i> Lam.	CEDI1	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
ASTERACEAE	<i>Chrysanthemum leucanthemum</i> L.	CHLE1	N	X																			X						
ASTERACEAE	<i>Chrysopsis fulcrata</i> Greene	CHFU1	Y																							X			
ASTERACEAE	<i>Cirsium arvense</i> (L.) Scop.	CIAR1	N	X			X					X			X										X	X	X		
ASTERACEAE	<i>Conyza canadensis</i> (L.) Cronq.	COCA1	Y																		X	X					X		
ASTERACEAE	<i>Dyssodia papposa</i> (Vent) Hitchc.	DYPA1	N																		X	X	X						
ASTERACEAE	<i>Erigeron divergens</i> T. & G.	ERDI1	Y																							X			
ASTERACEAE	<i>Grindelia squarrosa</i> (Pursh.) Dun.	GRSQ1	Y		X	X	X					X	X		X					X	X	X	X	X	X	X	X		
ASTERACEAE	<i>Helianthus annuus</i> L.	HEAN1	Y		X								X			X					X	X				X			
ASTERACEAE	<i>Lactuca serriola</i> L.	LASE1	N		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
ASTERACEAE	<i>Liatris punctata</i> Hook.	LIPU1	Y																	X									
ASTERACEAE	<i>Scorzonera laciniata</i> L.	SCLA1	N		X																				X	X			
ASTERACEAE	<i>Sonchus arvensis</i> L. ssp. <i>uglinosus</i> (Bieb.) Nyman	SOAR2	N		X			X																					
ASTERACEAE	<i>Taraxacum officinale</i> Weber	TAOF1	N														X			X		X	X						
ASTERACEAE	<i>Thelesperma megapotanicum</i> (Spreng.) O. Ktze.	THME1	Y																				X						
ASTERACEAE	<i>Tragopogon dubius</i> Scop.	TRDU1	N		X		X					X	X		X						X	X	X	X	X	X	X		
BORAGINACEAE	<i>Onosmodium molle</i> Michx. var. <i>occidentale</i> (Mack.) Johnst.	ONMO1	Y																							X			
BRASSICACEAE	<i>Alyssum alyssoides</i> (L.) L.	ALAL1	N																						X	X			
BRASSICACEAE	<i>Alyssum minus</i> (L.) Rothmaler var. <i>micranthus</i> (C. A. Mey.) Dudley	ALMI1	N		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
BRASSICACEAE	<i>Erysimum capitatum</i> (Nutt.) DC.	ERCA2	Y										X																
BRASSICACEAE	<i>Lepidium campestre</i> (L.) R. Br.	LECA1	N		X								X				X		X	X	X	X	X	X	X	X			
BRASSICACEAE	<i>Lesquerella montana</i> (A. Gray) Wats.	LEMO1	Y										X																
BRASSICACEAE	<i>Sisymbrium altissimum</i> L.	SIAL1	N		X																								
CHENOPODIACEAE	<i>Chenopodium album</i> L.	CHAL1	N		X								X				X				X		X		X		X		
CHENOPODIACEAE	<i>Chenopodium fremontii</i> S. Wats.	CHFR1	Y		X			X					X													X			
CHENOPODIACEAE	<i>Chenopodium leptophyllum</i> Nutt. ex Moq.	CHLE2	Y										X																
CHENOPODIACEAE	<i>Kochia scoparia</i> (L.) Schrad.	KOSC1	N		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
CHENOPODIACEAE	<i>Salsola iberica</i> Senn. & Pau.	SAIB1	N		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
CONVOLVULACEAE	<i>Convolvulus arvensis</i> L.	COAR1	N	X	X		X	X		X	X						X					X	X	X	X	X			
EUPHORBIACEAE	<i>Euphorbia serpyllifolia</i> Pers.	EUSE1	Y															X			X	X				X			
FABACEAE	<i>Astragalus canadensis</i> L.	ASCA1	Y									X			X														
FABACEAE	<i>Medicago lupulina</i> L.	MELU1	N									X																	
FABACEAE	<i>Medicago sativa</i> L. ssp. <i>sativa</i>	MESA1	N																										
FABACEAE	<i>Melilotus alba</i> Medic.	MEAL1	N									X		X		X				X				X	X				
FABACEAE	<i>Melilotus officinalis</i> (L.) Pall.	MEOF1	N		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
FABACEAE	<i>Psoralea tenuiflora</i> Pursh.	PSTE1	Y																								X		
GERANIACEAE	<i>Erodium cicutarium</i> (L.) L'Her.	ERCI1	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
LAMIACEAE	<i>Marrubium vulgare</i> L.	MAVU1	N														X					X							
LINACEAE	<i>Linum perenne</i> L. var. <i>lewisii</i> (Pursh.) Eat. & Wright	LIPE1	Y																						X	X			
MALVACEAE	<i>Sphaeralcea coccinea</i> (Pursh.) Rydb.	SPCO1	Y																								X		
NYCTAGINACEAE	<i>Mirabilis linearis</i> (Pursh.) Heimerl	MILI1	Y											X															
PLANTAGINACE	<i>Plantago lanceolata</i> L.	PLLA1	N		X			X		X															X	X	X		
PLANTAGINACE	<i>Plantago patagonica</i> Jacq.	PLPA1	Y					X													X	X							
POACEAE	<i>Aegilops cylindrica</i> Host	AECY1	N	X																						X			
POACEAE	<i>Agropyron caninum</i> (L.) Beauv. ssp. <i>majus</i> (Vasey) C. L. Hitchc.	AGCA1	Y		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
POACEAE	<i>Agropyron cristatum</i> (L.) Gaertn.	AGCR1	N														X								X				
POACEAE	<i>Agropyron dasystachyum</i> (Hook.) Scribn.	AGDA1	Y				X						X			X						X							

Table 2. (cont.)

Family	Scientific Name	Speccode	Native	Noxious Weed	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25
POACEAE	<i>Agropyron intermedium</i> (Host) Beauv.	AGIN1	N												X												X		
POACEAE	<i>Agropyron smithii</i> Rydb.	AGSM1	Y		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
POACEAE	<i>Andropogon gerardii</i> Vitman	ANGE1	Y				X			X								X	X		X	X	X		X	X			
POACEAE	<i>Andropogon scoparius</i> Michx.	ANSC1	Y															X	X										
POACEAE	<i>Bouteloua curtipendula</i> (Michx.) Torr.	BOCU1	Y		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
POACEAE	<i>Bouteloua gracilis</i> (H. B. K.) Lag ex Griffiths	BOGR1	Y			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
POACEAE	<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i>	BRIN1	N						X			X	X	X	X	X							X	X	X				
POACEAE	<i>Bromus japonicus</i> Thunb. ex Murr.	BRJA1	N		X	X						X								X		X	X		X				
POACEAE	<i>Bromus tectorum</i> L.	BRTE1	N	X		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
POACEAE	<i>Buchloe dactyloides</i> (Nutt.) Engelm.	BUDA1	Y			X	X		X		X	X					X	X		X	X		X	X		X			
POACEAE	<i>Digitaria sanguinalis</i> (L.) Scop.	DISA1	N																X										
POACEAE	<i>Echinochloa crusgallii</i> (L.) Beauv.	ECCR1	N		X																								
POACEAE	<i>Elymus canadensis</i> L.	ELCA1	Y								X	X																	
POACEAE	<i>Festuca pratensis</i> Huds.	FEPR1	N																X			X				X			
POACEAE	<i>Hordeum jubatum</i> L.	HOJU1	Y								X		X				X						X			X			
POACEAE	<i>Hordeum pusillum</i> Nutt.	HOPU1	Y																										
POACEAE	<i>Koeleria pyramidata</i> (Lam.) Beauv.	KOPY1	Y																		X	X							
POACEAE	<i>Muhlenbergia montana</i> (Nutt.) Hitchc.	MUMO1	Y																	X									
POACEAE	<i>Poa compressa</i> L.	POCO1	N		X					X		X	X							X			X	X					
POACEAE	<i>Poa pratensis</i> L.	POPR1	N												X								X	X					
POACEAE	<i>Setaria viridis</i> (L.) Beauv.	SEVI1	N		X				X	X											X								
POACEAE	<i>Sorghastrum nutans</i> (L.) Nash	SONU1	Y							X			X			X		X			X								
POACEAE	<i>Sporobolus asper</i> (Michx.) Kunth	SPAS1	Y																						X	X			
POACEAE	<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	SPCR1	Y																X		X	X							
POACEAE	<i>Stipa comata</i> Trin. & Rupr.	STCO1	Y																					X					
POACEAE	<i>Stipa viridula</i> Trin.	STVI1	Y																						X	X			
POACEAE	<i>Triticum aestivum</i> L.	TRAЕ1	N		X	X			X		X		X		X		X		X						X		X		
POLYGONACEAE	<i>Polygonum arenastrum</i> Jord. ex Bor.	POAR1	N		X	X		X	X		X		X		X	X	X	X		X				X					
POLYGONACEAE	<i>Polygonum persicaria</i> L.	POPE2	N		X																								
POLYGONACEAE	<i>Rumex crispus</i> L.	RUCR1	N																	X									
SANTALACEAE	<i>Comandra umbellata</i> (L.) Nutt.	COUM1	Y																		X								
SCROPHULARIACEAE	<i>Linaria dalmatica</i> (L.) Mill.	LIDA1	N	X									X													X			
SCROPHULARIACEAE	<i>Verbascum thapsus</i> L.	VETH1	N	X																	X	X				X	X		
SOLANACEAE	<i>Solanum rostratum</i> Dun.	SORO1	Y									X																	
VERBENACEAE	<i>Verbena bracteata</i> Lag. & Rodr.	VEBR1	Y			X	X	X	X	X		X	X		X	X			X	X	X	X	X	X	X	X			
	Unknown species	UNKN										X								X		X	X	X	X				
	Total Number of Species		30	13	13	27	17	22	20	18	22	9	14	28	19	15	19	22	31	21	25	25	32	39	10	10	15		

Shaded species are those that were seeded.

Table 3. Number of Seeded Species Present in 2006 Summary

Location	# Species Seeded at Location	# Seeded Species Present in 2006	% Seeded Species Present in 2006
A1	11	3	27
A2	11	3	27
A3	7	3	43
A4	11	7	64
A5	11	3	27
A6	11	7	64
A7	12	5	42
A8	7	5	71
A9	7	4	57
A10	14	7	50
A11	11	3	27
A12	12	4	33
A13	11	3	27
A14	14	9	64
A15	13	7	54
A16	11	4	36
A17	11	10	91
A18	11	7	64
A19	13	7	54
A20	14	3	21
A21	11	6	55
A22	12	7	58
A23	7	4	57
A24	10	6	60
A25	7	4	57

Shaded locations pass success criteria in 2006.

Table 4. 2006 Rock, Litter, and Basal Vegetation Cover Summary

Location	Basal Veg Cover	Rock Cover	Litter Cover	Total Ground Cover
A1	3.7	54.2	7.8	65.6
A2	2.3	52.6	14.8	69.6
A3	2.5	8.8	72.3	83.5
A4	2.9	38.8	37.0	78.8
A5	2.8	43.7	5.3	51.8
A6	6.3	29.8	25.0	61.0
A7	2.3	47.7	6.0	55.9
A8	3.8	18.0	79.5	101.3
A9	2.8	27.0	9.7	39.5
A10	6.3	7.5	66.3	80.0
A11	2.5	43.8	12.7	58.9
A12	5.1	20.3	15.8	41.1
A13	2.5	47.8	25.0	75.3
A14	10.0	33.0	7.3	50.3
A15	2.5	21.0	75.2	98.7
A16	2.5	54.5	19.8	76.8
A17	2.5	57.3	18.3	78.0
A18	2.5	47.8	12.3	62.5
A19	3.3	13.3	79.0	95.7
A20	2.5	3.3	71.3	77.0
A21	2.3	35.0	28.8	66.1
A22	5.8	17.9	50.7	74.4
A23	2.5	9.8	90.0	102.3
A24	15.0	2.8	85.8	103.5
A25	3.1	11.3	85.0	99.3

All values are percentages.

Some values exceed 100% because of the use of cover class midpoints for data collection and analyses.

Shaded locations pass success criteria in 2006.

Table 5. Species Foliar Cover Summary at Locations A1 - A5

Table 5. (cont.)

Scientific Name	Speccode	Growth Form	Native	Cool/Warm Season	Noxious Weed	A1		A2		A3		A4		A5	
						Absolute Cover (%)	Relative Cover (%)								
<i>Sphaeralcea coccinea</i> (Pursh.) Rydb.	SPCO1	F	Y												
<i>Thelesperma megapotanicum</i> (Spreng.) O. Ktze.	THME1	F	Y												
<i>Verbena bracteata</i> Lag. & Rodr.	VEBR1	F	Y			0.1	0.2	0.1	0.5	0.3	0.8	0.8	2.2	0.2	0.9
<i>Aegilops cylindrica</i> Host	AECY1	G	N	C	X										
<i>Agropyron cristatum</i> (L.) Gaertn.	AGCR1	G	N	C											
<i>Agropyron intermedium</i> (Host) Beauv.	AGIN1	G	N	C											
<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i>	BRIN1	G	N	C											
<i>Bromus japonicus</i> Thunb. ex Murr.	BRJA1	G	N	C		0.2	0.4			0.3	0.8				
<i>Bromus tectorum</i> L.	BRTE1	G	N	C	X			0.2	0.9			0.8	2.5		
<i>Festuca pratensis</i> Huds.	FEPR1	G	N	C											
<i>Poa compressa</i> L.	POCO1	G	N	C		0.2	0.4								
<i>Poa pratensis</i> L.	POPR1	G	N	C											
<i>Triticum aestivum</i> L.	TRAE1	G	N	C		7.8	20.9	7.2	40.6				3.6	19.7	
<i>Digitaria sanguinalis</i> (L.) Scop.	DISA1	G	N	W											
<i>Echinochloa crusgalli</i> (L.) Beauv.	ECCR1	G	N	W		0.2	0.4								
<i>Setaria viridis</i> (L.) Beauv.	SEV11	G	N	W		0.1	0.2						0.1	0.5	
<i>Agropyron caninum</i> (L.) Beauv. ssp. <i>majus</i> (Vasey) C. L. Hitchc.	AGCA1	G	Y	C		5.6	15.1	2.5	14.2	11.0	37.0	8.4	24.8	3.1	17.0
<i>Agropyron dasystachyum</i> (Hook.) Scribn.	AGDA1	G	Y	C								1.3	3.7		
<i>Agropyron smithii</i> Rydb.	AGSM1	G	Y	C		1.0	2.7	1.5	8.5	1.8	5.9	2.9	8.6	1.0	5.5
<i>Elymus canadensis</i> L.	ELCA1	G	Y	C											
<i>Hordeum jubatum</i> L.	HOJU1	G	Y	C											
<i>Hordeum pusillum</i> Nutt.	HOPU1	G	Y	C									0.1	0.5	
<i>Koeleria pyramidata</i> (Lam.) Beauv.	KOPY1	G	Y	C											
<i>Stipa comata</i> Trin. & Rupr.	STCO1	G	Y	C											
<i>Stipa viridula</i> Trin.	STVI1	G	Y	C											
<i>Andropogon gerardii</i> Vitman	ANGE1	G	Y	W								0.1	0.2		
<i>Andropogon scoparius</i> Michx.	ANSC1	G	Y	W											
<i>Bouteloua curtipendula</i> (Michx.) Torr.	BOCU1	G	Y	W		0.2	0.4					1.4	4.2	0.1	0.5
<i>Bouteloua gracilis</i> (H. B. K.) Lag ex Griffiths	BOGR1	G	Y	W				0.2	0.9			1.8	5.1		
<i>Buchloe dactyloides</i> (Nutt.) Engelm.	BUDA1	G	Y	W						2.3	7.6	0.2	0.5		
<i>Muhlenbergia montana</i> (Nutt.) Hitchc.	MUMO1	G	Y	W											
<i>Sorghastrum nutans</i> (L.) Nash	SONU1	G	Y	W											
<i>Sporobolus asper</i> (Michx.) Kunth	SPAS1	G	Y	W											
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	SPCR1	G	Y	W											
Unknown species	UNKN														
Total Foliar Cover						37.1	100.0	17.7	100.0	29.8	100.0	34.0	100.0	18.2	100.0
Total Forb Cover						22.0	59.3	6.2	34.9	14.5	48.7	17.2	50.5	10.3	56.4
Total Non-Native Forb Cover						19.8	53.3	6.1	34.4	13.8	46.2	15.5	45.6	10.0	55.0
Total Native Forb Cover						2.3	6.1	0.1	0.5	0.8	2.5	1.7	4.9	0.3	1.4
Total Graminoid Cover						15.1	40.7	11.5	65.1	15.3	51.3	16.8	49.5	7.9	43.6
Total Non-Native Graminoid Cover						8.3	22.5	7.3	41.5	0.3	0.8	0.8	2.5	3.7	20.2
Total Native Graminoid Cover						6.8	18.2	4.2	23.6	15.0	50.4	16.0	47.1	4.3	23.4
Total Native Cover						9.0	24.3	4.3	24.1	15.8	52.9	17.7	52.0	4.5	24.8
Total Non-Native Cover						28.1	75.7	13.4	75.9	14.0	47.1	16.3	48.0	13.7	75.2
Total Warm-Season Graminoid Cover						0.4	1.1	0.2	0.9	2.3	7.6	3.4	10.0	0.2	0.9
Total Cool-Season Graminoid Cover						14.7	39.6	11.3	64.2	13.0	43.7	13.4	39.5	7.7	42.7
Total Noxious Weed Cover						2.1	5.6	0.5	2.8	9.8	32.8	5.8	16.9	0.7	3.7

Absolute Cover = The percentage of the number of hits on a species out of the total number of hits possible.

Relative Cover = The percentage of the number of hits on a species out of the total number of vegetation hits.

Native Categories: Y = Native, N = Non-Native

Growth Form Categories: F = Forb, G = Graminoid

Cool/Warm Season Categories: C = Cool-Season Graminoid, W = Warm-Season Graminoid

Noxious Weed Category: X = Noxious Weed (listed on May 2006 Colorado State Noxious Weed List)

Shaded cells indicate success criteria were met in 2006.

Table 6. Species Foliar Cover Summary at Locations A6 - A10

Scientific Name	Speccode	Growth Form	Native	Cool/Warm Season	Noxious Weed	A6		A7		A8		A9		A10	
						Absolute Cover (%)	Relative Cover (%)								
<i>Alyssum alyssoides</i> (L.) L.	ALAL1	F	N							0.3	0.5				
<i>Alyssum minus</i> (L.) Rothmaler var. <i>micranthus</i> (C. A. Mey.) Dudley	ALMI1	F	N			0.3	0.6			0.3	0.5				
<i>Amaranthus albus</i> L.	AMAL2	F	N												
<i>Carduus nutans</i> L. ssp. <i>macrolepis</i> (Peterm.) Kazmi	CANU1	F	N		X										
<i>Centaurea diffusa</i> Lam.	CEDI1	F	N		X	0.3	0.6	0.5	5.3	4.8	9.7	1.8	10.4		
<i>Chenopodium album</i> L.	CHAL1	F	N					0.1	0.9						
<i>Chrysanthemum leucanthemum</i> L.	CHLE1	F	N		X										
<i>Cirsium arvense</i> (L.) Scop.	CIAR1	F	N		X							0.5	2.8		
<i>Convolvulus arvensis</i> L.	COAR1	F	N		X	1.5	3.7	0.1	0.9						
<i>Dyssodia papposa</i> (Vent.) Hitchc.	DYPA1	F	N												
<i>Erodium cicutarium</i> (L.) L'Her.	ERCI1	F	N		X	0.5	1.2	1.3	14.0						
<i>Kochia scoparia</i> (L.) Schrad.	KOSC1	F	N			5.3	12.8	0.1	0.9			2.3	12.8		
<i>Lactuca serriola</i> L.	LASE1	F	N			0.3	0.6			0.3	0.5	1.3	7.1		
<i>Lepidium campestre</i> (L.) R. Br.	LECA1	F	N							0.5	1.0				
<i>Linaria dalmatica</i> (L.) Mill.	LIDA1	F	N		X					1.8	3.6				
<i>Marrubium vulgare</i> L.	MAVU1	F	N												
<i>Melilotus alba</i> Medic.	MEAL1	F	N			1.5	3.7					0.1	0.5		
<i>Medicago lupulina</i> L.	MELU1	F	N												
<i>Melilotus officinalis</i> (L.) Pall.	MEOF1	F	N			0.8	1.8	0.8	7.9	1.8	3.6	3.7	20.9		
<i>Medicago sativa</i> L. ssp. <i>sativa</i>	MESA1	F	N												
<i>Plantago lanceolata</i> L.	PLLA1	F	N			0.3	0.6								
<i>Polygonum arenastrum</i> Jord. ex Bor.	POAR1	F	N					0.1	0.9			0.1	0.5		
<i>Polygonum persicaria</i> L.	POPE2	F	N												
<i>Rumex crispus</i> L.	RUCR1	F	N												
<i>Salsola iberica</i> Senn. & Pau.	SAIB1	F	N					0.1	0.9			0.8	4.7		
<i>Scorzonera laciniata</i> L.	SCLA1	F	N												
<i>Sisymbrium altissimum</i> L.	SIAL1	F	N												
<i>Sonchus arvensis</i> L. ssp. <i>uglinosus</i> (Bieb.) Nyman	SOAR2	F	N												
<i>Taraxacum officinale</i> Weber	TAOF1	F	N												
<i>Tragopogon dubius</i> Scop.	TRDU1	F	N							0.3	0.5	0.2	0.9		
<i>Verbascum thapsus</i> L.	VETH1	F	N		X										
<i>Ambrosia artemisiifolia</i> L.	AMAR1	F	Y												
<i>Ambrosia psilostachya</i> DC.	AMPS1	F	Y									0.1	0.5		
<i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michx.) Hall & Clem.	ARCA1	F	Y												
<i>Artemisia frigida</i> Willd.	ARFR1	F	Y												
<i>Astragalus canadensis</i> L.	ASCA1	F	Y							0.3	0.5				
<i>Aster porteri</i> Gray	ASPO1	F	Y							0.5	1.0				
<i>Asclepias speciosa</i> Torr.	ASSP1	F	Y												
<i>Chenopodium fremontii</i> S. Wats.	CHFR1	F	Y												
<i>Chrysopsis fulcrata</i> Greene	CHFU1	F	Y												
<i>Chenopodium leptophyllum</i> Nutt. ex Moq.	CHLE2	F	Y					0.5	5.3						
<i>Conyza canadensis</i> (L.) Cronq.	COCA1	F	Y												
<i>Comandra umbellata</i> (L.) Nutt.	COUM1	F	Y												
<i>Erysimum capitatum</i> (Nutt.) DC.	ERCA2	F	Y					0.1	0.9						
<i>Erigeron divergens</i> T. & G.	ERDI1	F	Y												
<i>Euphorbia serpyllifolia</i> Pers.	EUSE1	F	Y												
<i>Grindelia squarrosa</i> (Pursh.) Dun.	GRSQ1	F	Y							7.0	14.3	0.6	3.3		
<i>Helianthus annuus</i> L.	HEAN1	F	Y									0.2	0.9		
<i>Lesquerella montana</i> (A. Gray) Wats.	LEMO1	F	Y					0.1	0.9						
<i>Linum perenne</i> L. var. <i>lewisii</i> (Pursh.) Eat. & Wright	LIPE1	F	Y												
<i>Liatris punctata</i> Hook.	LIPU1	F	Y												
<i>Mirabilis linearis</i> (Pursh.) Heimerl	MILI1	F	Y							0.3	0.5				
<i>Onosmodium molle</i> Michx. var. <i>occidentale</i> (Mack.) Johnst.	ONMO1	F	Y												
<i>Plantago patagonica</i> Jacq.	PLPA1	F	Y												
<i>Psoralea tenuiflora</i> Pursh.	PSTE1	F	Y												
<i>Solanum rostratum</i> Dun.	SORO1	F	Y					0.5	5.3						

Table 6. (cont.)

Scientific Name	Speccode	Growth Form	Native	Cool/Warm Season	Noxious Weed	A6		A7		A8		A9		A10	
						Absolute Cover (%)	Relative Cover (%)								
<i>Sphaeralcea coccinea</i> (Pursh.) Rydb.	SPCO1	F	Y												
<i>Thelesperma megapotanicum</i> (Spreng.) O. Ktze.	THME1	F	Y												
<i>Verbena bracteata</i> Lag. & Rodr.	VEBR1	F	Y					0.6	6.1	0.3	0.5				
<i>Aegilops cylindrica</i> Host	AECY1	G	N	C	X										
<i>Agropyron cristatum</i> (L.) Gaertn.	AGCR1	G	N	C											
<i>Agropyron intermedium</i> (Host) Beauv.	AGIN1	G	N	C											
<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i>	BRIN1	G	N	C		5.5	13.4					0.2	0.9	2.0	3.9
<i>Bromus japonicus</i> Thunb. ex Murr.	BRJA1	G	N	C								0.1	0.5		
<i>Bromus tectorum</i> L.	BRTE1	G	N	C	X	0.3	0.6	0.3	2.6			0.1	0.5	0.5	1.0
<i>Festuca pratensis</i> Huds.	FEPR1	G	N	C											
<i>Poa compressa</i> L.	POCO1	G	N	C		0.5	1.2			2.3	4.6				
<i>Poa pratensis</i> L.	POPR1	G	N	C								0.1	0.5		
<i>Triticum aestivum</i> L.	TRA1	G	N	C				1.3	13.2			0.4	2.4		
<i>Digitaria sanguinalis</i> (L.) Scop.	DISA1	G	N	W											
<i>Echinochloa crusgalli</i> (L.) Beauv.	ECCR1	G	N	W											
<i>Setaria viridis</i> (L.) Beauv.	SEVI1	G	N	W		0.5	1.2								
<i>Agropyron caninum</i> (L.) Beauv. ssp. <i>majus</i> (Vasey) C. L. Hitchc.	AGCA1	G	Y	C		13.3	32.3	2.3	23.7	20.3	41.3	2.8	15.6	25.0	48.5
<i>Agropyron dasystachyum</i> (Hook.) Scribn.	AGDA1	G	Y	C										1.5	2.9
<i>Agropyron smithii</i> Rydb.	AGSM1	G	Y	C		2.5	6.1	0.6	6.1	5.3	10.7	1.6	9.0	14.0	27.2
<i>Elymus canadensis</i> L.	ELCA1	G	Y	C		0.3	0.6	0.3	2.6						
<i>Hordeum jubatum</i> L.	HOJU1	G	Y	C		0.5	1.2					0.1	0.5		
<i>Hordeum pusillum</i> Nutt.	HOPU1	G	Y	C											
<i>Koeleria pyramidata</i> (Lam.) Beauv.	KOPY1	G	Y	C											
<i>Stipa comata</i> Trin. & Rupr.	STCO1	G	Y	C											
<i>Stipa viridula</i> Trin.	STVI1	G	Y	C											
<i>Andropogon gerardii</i> Vitman	ANGE1	G	Y	W				0.1	0.9						
<i>Andropogon scoparius</i> Michx.	ANSC1	G	Y	W											
<i>Bouteloua curtipendula</i> (Michx.) Torr.	BOCU1	G	Y	W		1.8	4.3			0.5	1.0	0.4	2.4	0.5	1.0
<i>Bouteloua gracilis</i> (H. B. K.) Lag ex Griffiths	BOGR1	G	Y	W		3.3	7.9	0.1	0.9	1.3	2.6	0.4	2.4	1.5	2.9
<i>Buchloe dactyloides</i> (Nutt.) Engelm.	BUDA1	G	Y	W		1.8	4.3			1.8	3.6			3.5	6.8
<i>Muhlenbergia montana</i> (Nutt.) Hitchc.	MUMO1	G	Y	W											
<i>Sorghastrum nutans</i> (L.) Nash	SONU1	G	Y	W		0.3	0.6						3.0	5.8	
<i>Sporobolus asper</i> (Michx.) Kunth	SPAS1	G	Y	W											
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	SPCR1	G	Y	W											
Unknown species	UNKN					0.3	0.6								
Total Foliar Cover						41.0	100.0	9.5	100.0	49.0	100.0	17.6	100.0	51.5	100.0
Total Forb Cover						10.5	25.6	4.8	50.0	17.8	36.2	11.5	65.4	0.0	0.0
Total Non-Native Forb Cover						10.5	25.6	3.0	31.6	9.5	19.4	10.7	60.7	0.0	0.0
Total Native Forb Cover						0.0	0.0	1.8	18.4	8.3	16.8	0.8	4.7	0.0	0.0
Total Graminoid Cover						30.3	73.8	4.8	50.0	31.3	63.8	6.1	34.6	51.5	100.0
Total Non-Native Graminoid Cover						6.8	16.5	1.5	15.8	2.3	4.6	0.8	4.7	2.5	4.9
Total Native Graminoid Cover						23.5	57.3	3.3	34.2	29.0	59.2	5.3	29.9	49.0	95.1
Total Native Cover						23.5	57.3	5.0	52.6	37.3	76.0	6.1	34.6	49.0	95.1
Total Non-Native Cover						17.3	42.1	4.5	47.4	11.8	24.0	11.5	65.4	2.5	4.9
Total Warm-Season Graminoid Cover						7.5	18.3	0.2	1.8	3.5	7.1	0.8	4.7	8.5	16.5
Total Cool-Season Graminoid Cover						22.8	55.5	4.6	48.2	27.8	56.6	5.3	29.9	43.0	83.5
Total Noxious Weed Cover						2.5	6.1	2.2	22.8	6.5	13.3	2.4	13.7	0.5	1.0

Absolute Cover = The percentage of the number of hits on a species out of the total number of hits possible.

Relative Cover = The percentage of the number of hits on a species out of the total number of vegetation hits.

Native Categories: Y = Native, N = Non-Native

Growth Form Categories: F = Forb, G = Graminoid

Cool/Warm Season Categories: C = Cool-Season Graminoid, W = Warm-Season Graminoid

Noxious Weed Category: X = Noxious Weed (listed on May 2006 Colorado State Noxious Weed List)

Shaded cells indicate success criteria were met in 2006.

Table 7. Species Foliar Cover Summary at Locations A11 - A15

Table 7. (cont.)

Scientific Name	Speccode	Growth Form	Native	Cool/Warm Season	Noxious Weed	A11		A12		A13		A14		A15	
						Absolute Cover (%)	Relative Cover (%)								
<i>Sphaeralcea coccinea</i> (Pursh.) Rydb.	SPCO1	F	Y												
<i>Thelesperma megapotanicum</i> (Spreng.) O. Ktze.	THME1	F	Y												
<i>Verbena bracteata</i> Lag. & Rodr.	VEBR1	F	Y			0.3	1.5	1.6	5.2					2.3	6.1
<i>Aegilops cylindrica</i> Host	AECY1	G	N	C	X										
<i>Agropyron cristatum</i> (L.) Gaertn.	AGCR1	G	N	C				0.2	0.6						
<i>Agropyron intermedium</i> (Host) Beauv.	AGIN1	G	N	C				0.1	0.3						
<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i>	BRIN1	G	N	C				0.2	0.6			0.3	0.6		
<i>Bromus japonicus</i> Thunb. ex Murr.	BRJA1	G	N	C											
<i>Bromus tectorum</i> L.	BRTE1	G	N	C	X			0.1	0.3	0.5	1.4	0.3	0.6	0.2	0.4
<i>Festuca pratensis</i> Huds.	FEPR1	G	N	C									1.5	3.4	
<i>Poa compressa</i> L.	POCO1	G	N	C										0.2	0.4
<i>Poa pratensis</i> L.	POPR1	G	N	C											
<i>Triticum aestivum</i> L.	TRA1	G	N	C		5.3	23.2			7.3	20.4				
<i>Digitaria sanguinalis</i> (L.) Scop.	DISA1	G	N	W											
<i>Echinochloa crusgalli</i> (L.) Beauv.	ECCR1	G	N	W											
<i>Setaria viridis</i> (L.) Beauv.	SEVI1	G	N	W											
<i>Agropyron caninum</i> (L.) Beauv. ssp. <i>majus</i> (Vasey) C. L. Hitchc.	AGCA1	G	Y	C		0.8	3.7	1.7	5.5	7.0	19.7	12.0	27.4	14.7	38.6
<i>Agropyron dasystachyum</i> (Hook.) Scribn.	AGDA1	G	Y	C											
<i>Agropyron smithii</i> Rydb.	AGSM1	G	Y	C		0.5	2.2	2.2	6.9	4.0	11.3	0.3	0.6	2.2	5.7
<i>Elymus canadensis</i> L.	ELCA1	G	Y	C											
<i>Hordeum jubatum</i> L.	HOJU1	G	Y	C						1.5	4.2				
<i>Hordeum pusillum</i> Nutt.	HOPU1	G	Y	C											
<i>Koeleria pyramidata</i> (Lam.) Beauv.	KOPY1	G	Y	C											
<i>Stipa comata</i> Trin. & Rupr.	STCO1	G	Y	C											
<i>Stipa viridula</i> Trin.	STVI1	G	Y	C											
<i>Andropogon gerardii</i> Vitman	ANGE1	G	Y	W								1.5	3.4	5.5	14.5
<i>Andropogon scoparius</i> Michx.	ANSC1	G	Y	W								0.8	1.7	0.2	0.4
<i>Bouteloua curtipendula</i> (Michx.) Torr.	BOCU1	G	Y	W				0.1	0.3			9.3	21.1	6.2	16.2
<i>Bouteloua gracilis</i> (H. B. K.) Lag ex Griffiths	BOGR1	G	Y	W		0.1	0.4	1.5	4.7	0.3	0.7	3.5	8.0	0.5	1.3
<i>Buchloe dactyloides</i> (Nutt.) Engelm.	BUDA1	G	Y	W								5.8	13.1	2.0	5.3
<i>Muhlenbergia montana</i> (Nutt.) Hitchc.	MUMO1	G	Y	W								1.5	3.4		
<i>Sorghastrum nutans</i> (L.) Nash	SONU1	G	Y	W								1.5	3.4		
<i>Sporobolus asper</i> (Michx.) Kunth	SPAS1	G	Y	W											
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	SPCR1	G	Y	W								0.3	0.6		
Unknown species	UNKN									1.5	4.2				
Total Foliar Cover						22.6	100.0	31.3	100.0	35.5	100.0	43.8	100.0	38.0	100.0
Total Forb Cover						15.9	70.5	25.3	81.0	13.5	38.0	5.5	12.6	6.5	17.1
Total Non-Native Forb Cover						15.5	68.6	23.5	75.2	13.0	36.6	5.3	12.0	3.2	8.3
Total Native Forb Cover						0.4	1.8	1.8	5.8	0.5	1.4	0.3	0.6	3.3	8.8
Total Graminoid Cover						6.7	29.5	5.9	19.0	20.5	57.7	38.3	87.4	31.5	82.9
Total Non-Native Graminoid Cover						5.3	23.2	0.5	1.7	7.8	21.8	2.0	4.6	0.3	0.9
Total Native Graminoid Cover						1.4	6.3	5.4	17.4	12.8	35.9	36.3	82.9	31.2	82.0
Total Native Cover						1.8	8.1	7.2	23.1	13.3	37.3	36.5	83.4	34.5	90.8
Total Non-Native Cover						20.8	91.9	24.1	76.9	20.8	58.5	7.3	16.6	3.5	9.2
Total Warm-Season Graminoid Cover						0.1	0.4	1.6	5.0	0.3	0.7	24.0	54.9	14.3	37.7
Total Cool-Season Graminoid Cover						6.6	29.2	4.4	14.0	20.3	57.0	14.3	32.6	17.2	45.2
Total Noxious Weed Cover						0.7	3.0	10.3	33.1	1.5	4.2	5.5	12.6	1.2	3.1

Absolute Cover = The percentage of the number of hits on a species out of the total number of hits possible.

Relative Cover = The percentage of the number of hits on a species out of the total number of vegetation hits.

Native Categories: Y = Native, N = Non-Native

Growth Form Categories: F = Forb, G = Graminoid

Cool/Warm Season Categories: C = Cool-Season Graminoid, W = Warm-Season Graminoid

Noxious Weed Category: X = Noxious Weed (listed on May 2006 Colorado State Noxious Weed List)

Shaded cells indicate success criteria were met in 2006.

Table 8. Species Foliar Cover Summary at Locations A16 - A20

Table 8. (cont.)

Scientific Name	Speccode	Growth Form	Native	Cool/Warm Season	Noxious Weed	A16		A17		A18		A19		A20	
						Absolute Cover (%)	Relative Cover (%)								
<i>Sphaeralcea coccinea</i> (Pursh.) Rydb.	SPCO1	F	Y												
<i>Thelesperma megapotanicum</i> (Spreng.) O. Ktze.	THME1	F	Y											0.3	0.5
<i>Verbena bracteata</i> Lag. & Rodr.	VEBR1	F	Y			1.5	2.9	4.3	8.8	8.3	21.7	4.7	10.9		
<i>Aegilops cylindrica</i> Host	AECY1	G	N	C	X										
<i>Agropyron cristatum</i> (L.) Gaertn.	AGCR1	G	N	C											
<i>Agropyron intermedium</i> (Host) Beauv.	AGIN1	G	N	C		0.3	0.5								
<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i>	BRIN1	G	N	C										2.3	4.1
<i>Bromus japonicus</i> Thunb. ex Murr.	BRJA1	G	N	C		0.3	0.5					0.2	0.4	0.3	0.5
<i>Bromus tectorum</i> L.	BRTE1	G	N	C	X	1.0	1.9	1.8	3.6			0.2	0.4	0.5	0.9
<i>Festuca pratensis</i> Huds.	FEPR1	G	N	C								1.3	3.1		
<i>Poa compressa</i> L.	POCO1	G	N	C								0.7	1.6	1.8	3.2
<i>Poa pratensis</i> L.	POPR1	G	N	C										0.3	0.5
<i>Triticum aestivum</i> L.	TRAЕ1	G	N	C		5.8	11.1								
<i>Digitaria sanguinalis</i> (L.) Scop.	DISA1	G	N	W		0.3	0.5								
<i>Echinochloa crusgallii</i> (L.) Beauv.	ECCR1	G	N	W											
<i>Setaria viridis</i> (L.) Beauv.	SEVI1	G	N	W				2.3	4.6						
<i>Agropyron caninum</i> (L.) Beauv. ssp. <i>majus</i> (Vasey) C. L. Hitchc.	AGCA1	G	Y	C		2.8	5.3	4.3	8.8	5.8	15.1	21.2	49.2	1.8	3.2
<i>Agropyron dasystachyum</i> (Hook.) Scribn.	AGDA1	G	Y	C				1.5	3.1						
<i>Agropyron smithii</i> Rydb.	AGSM1	G	Y	C		1.5	2.9	2.3	4.6	2.5	6.6	3.0	7.0	12.3	22.6
<i>Elymus canadensis</i> L.	ELCA1	G	Y	C											
<i>Hordeum jubatum</i> L.	HOJU1	G	Y	C								0.2	0.4		
<i>Hordeum pusillum</i> Nutt.	HOPU1	G	Y	C											
<i>Koeleria pyramidata</i> (Lam.) Beauv.	KOPY1	G	Y	C				0.3	0.5			0.2	0.4		
<i>Stipa comata</i> Trin. & Rupr.	STCO1	G	Y	C										0.3	0.5
<i>Stipa viridula</i> Trin.	STVI1	G	Y	C											
<i>Andropogon gerardii</i> Vitman	ANGE1	G	Y	W				0.8	1.5	2.3	5.9	3.0	7.0		
<i>Andropogon scoparius</i> Michx.	ANSC1	G	Y	W								0.2	0.4		
<i>Bouteloua curtipendula</i> (Michx.) Torr.	BOCU1	G	Y	W		1.5	2.9	3.8	7.7	0.8	2.0	0.7	1.6		
<i>Bouteloua gracilis</i> (H. B. K.) Lag ex Griffiths	BOGR1	G	Y	W		0.3	0.5	2.8	5.7	3.5	9.2			6.8	12.4
<i>Buchloe dactyloides</i> (Nutt.) Engelm.	BUDA1	G	Y	W				2.3	4.6	0.8	2.0	1.2	2.7		
<i>Muhlenbergia montana</i> (Nutt.) Hitchc.	MUMO1	G	Y	W											
<i>Sorghastrum nutans</i> (L.) Nash	SONU1	G	Y	W				0.3	0.5						
<i>Sporobolus asper</i> (Michx.) Kunth	SPAS1	G	Y	W											
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	SPCR1	G	Y	W				0.3	0.5	0.3	0.7				
Unknown species	UNKN							0.3	0.5	0.3	0.7			1.5	2.8
Total Foliar Cover						51.8	100.0	48.5	100.0	38.0	100.0	43.0	100.0	54.3	100.0
Total Forb Cover						38.3	73.9	26.0	53.6	22.0	57.9	11.2	26.0	26.8	49.3
Total Non-Native Forb Cover						34.8	67.1	17.5	36.1	13.0	34.2	6.0	14.0	6.5	12.0
Total Native Forb Cover						3.5	6.8	8.5	17.5	9.0	23.7	5.2	12.0	20.3	37.3
Total Graminoid Cover						13.5	26.1	22.3	45.9	15.8	41.4	31.8	74.0	26.0	47.9
Total Non-Native Graminoid Cover						7.5	14.5	4.0	8.2	0.0	0.0	2.3	5.4	5.0	9.2
Total Native Graminoid Cover						6.0	11.6	18.3	37.6	15.8	41.4	29.5	68.6	21.0	38.7
Total Native Cover						9.5	18.4	26.8	55.2	24.8	65.1	34.7	80.6	41.3	76.0
Total Non-Native Cover						42.3	81.6	21.5	44.3	13.0	34.2	8.3	19.4	11.5	21.2
Total Warm-Season Graminoid Cover						2.0	3.9	12.3	25.3	7.5	19.7	5.0	11.6	6.8	12.4
Total Cool-Season Graminoid Cover						11.5	22.2	10.0	20.6	8.3	21.7	26.8	62.4	19.3	35.5
Total Noxious Weed Cover						10.8	20.8	10.8	22.2	4.3	11.2	3.2	7.4	4.0	7.4

Absolute Cover = The percentage of the number of hits on a species out of the total number of hits possible.

Relative Cover = The percentage of the number of hits on a species out of the total number of vegetation hits.

Native Categories: Y = Native, N = Non-Native

Growth Form Categories: F = Forb, G = Graminoid

Cool/Warm Season Categories: C = Cool-Season Graminoid, W = Warm-Season Graminoid

Noxious Weed Category: X = Noxious Weed (listed on May 2006 Colorado State Noxious Weed List)

Shaded cells indicate success criteria were met in 2006.

Table 9. Species Foliar Cover Summary at Locations A21 - A25

Table 9. (cont.)

Scientific Name	Speccode	Growth Form	Native	Cool/Warm Season	Noxious Weed	A21		A22		A23		A24		A25	
						Absolute Cover (%)	Relative Cover (%)								
<i>Sphaeralcea coccinea</i> (Pursh.) Rydb.	SPCO1	F	Y					0.5	1.1						
<i>Thelesperma megapotanicum</i> (Spreng.) O. Ktze.	THME1	F	Y												
<i>Verbena bracteata</i> Lag. & Rodr.	VEBR1	F	Y			0.3	0.6	0.6	1.3						
<i>Aegilops cylindrica</i> Host	AECY1	G	N	C	X			0.1	0.2					0.6	2.9
<i>Agropyron cristatum</i> (L.) Gaertn.	AGCR1	G	N	C		0.1	0.2								
<i>Agropyron intermedium</i> (Host) Beauv.	AGIN1	G	N	C							9.3	13.5			
<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i>	BRIN1	G	N	C		0.3	0.6	2.7	6.1						
<i>Bromus japonicus</i> Thunb. ex Murr.	BRJA1	G	N	C				0.3	0.8						
<i>Bromus tectorum</i> L.	BRTE1	G	N	C	X	0.2	0.4	1.0	2.3			15.5	22.6	0.7	3.3
<i>Festuca pratensis</i> Huds.	FEPR1	G	N	C				0.1	0.2						
<i>Poa compressa</i> L.	POCO1	G	N	C											
<i>Poa pratensis</i> L.	POPR1	G	N	C		0.1	0.2								
<i>Triticum aestivum</i> L.	TRA1	G	N	C				0.1	0.2					2.6	12.8
<i>Digitaria sanguinalis</i> (L.) Scop.	DISA1	G	N	W											
<i>Echinochloa crusgallii</i> (L.) Beauv.	ECCR1	G	N	W											
<i>Setaria viridis</i> (L.) Beauv.	SEVI1	G	N	W											
<i>Agropyron caninum</i> (L.) Beauv. ssp. <i>majus</i> (Vasey) C. L. Hitchc.	AGCA1	G	Y	C		8.9	20.7	9.0	20.7	7.8	29.2	0.3	0.4	6.4	31.8
<i>Agropyron dasystachyum</i> (Hook.) Scribn.	AGDA1	G	Y	C											
<i>Agropyron smithii</i> Rydb.	AGSM1	G	Y	C		1.8	4.2	2.4	5.5	6.5	24.5	15.3	22.3	3.2	15.7
<i>Elymus canadensis</i> L.	ELCA1	G	Y	C											
<i>Hordeum jubatum</i> L.	HOJU1	G	Y	C		0.1	0.2								
<i>Hordeum pusillum</i> Nutt.	HOPU1	G	Y	C											
<i>Koeleria pyramidata</i> (Lam.) Beauv.	KOPY1	G	Y	C											
<i>Stipa comata</i> Trin. & Rupr.	STCO1	G	Y	C											
<i>Stipa viridula</i> Trin.	STVI1	G	Y	C				0.5	1.1			20.5	29.9		
<i>Andropogon gerardii</i> Vitman	ANGE1	G	Y	W		0.3	0.6	0.6	1.3						
<i>Andropogon scoparius</i> Michx.	ANSC1	G	Y	W											
<i>Bouteloua curtipendula</i> (Michx.) Torr.	BOCU1	G	Y	W		2.2	5.0	4.8	10.9	3.0	11.3	0.3	0.4	0.5	2.5
<i>Bouteloua gracilis</i> (H. B. K.) Lag ex Griffiths	BOGR1	G	Y	W		0.9	2.1	0.7	1.5	3.0	11.3	1.5	2.2	0.3	1.2
<i>Buchloe dactyloides</i> (Nutt.) Engelm.	BUDA1	G	Y	W		0.7	1.5	2.3	5.2			2.0	2.9		
<i>Muhlenbergia montana</i> (Nutt.) Hitchc.	MUMO1	G	Y	W											
<i>Sorghastrum nutans</i> (L.) Nash	SONU1	G	Y	W											
<i>Sporobolus asper</i> (Michx.) Kunth	SPAS1	G	Y	W				2.1	4.8			3.8	5.5		
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	SPCR1	G	Y	W											
Unknown species	UNKN														
Total Foliar Cover						43.2	100.0	43.6	100.0	26.5	100.0	68.5	100.0	20.2	100.0
Total Forb Cover						27.8	64.3	17.1	39.2	6.3	23.6	0.3	0.4	6.0	29.8
Total Non-Native Forb Cover						25.6	59.3	13.6	31.2	2.8	10.4	0.3	0.4	6.0	29.8
Total Native Forb Cover						2.2	5.0	3.5	8.0	3.5	13.2	0.0	0.0	0.0	0.0
Total Graminoid Cover						15.4	35.7	26.5	60.8	20.3	76.4	68.3	99.6	14.2	70.2
Total Non-Native Graminoid Cover						0.6	1.4	4.3	9.8	0.0	0.0	24.8	36.1	3.8	19.0
Total Native Graminoid Cover						14.8	34.4	22.3	51.1	20.3	76.4	43.5	63.5	10.3	51.2
Total Native Cover						17.0	39.4	25.8	59.1	23.8	89.6	43.5	63.5	10.3	51.2
Total Non-Native Cover						26.2	60.6	17.8	40.9	2.8	10.4	25.0	36.5	9.8	48.8
Total Warm-Season Graminoid Cover						4.0	9.3	10.3	23.7	6.0	22.6	7.5	10.9	0.8	3.7
Total Cool-Season Graminoid Cover						11.4	26.4	16.2	37.1	14.3	53.8	60.8	88.7	13.4	66.5
Total Noxious Weed Cover						8.2	18.9	10.0	22.9	0.5	1.9	15.5	22.6	2.9	14.5

Absolute Cover = The percentage of the number of hits on a species out of the total number of hits possible.

Relative Cover = The percentage of the number of hits on a species out of the total number of vegetation hits.

Native Categories: Y = Native, N = Non-Native

Growth Form Categories: F = Forb, G = Graminoid

Cool/Warm Season Categories: C = Cool-Season Graminoid, W = Warm-Season Graminoid

Noxious Weed Category: X = Noxious Weed (listed on May 2006 Colorado State Noxious Weed List)

Shaded cells indicate success criteria were met in 2006.

Table 10. Success Criteria Summary for Revegetation Locations in 2006

Location	Minimum of 50% of Seeded Species Present	70% Ground Cover of Litter, Rock, and Vegetation	30% Relative Cover of Desired Species	No Single Species With >45% Relative Cover	Overall Pass/Fail
A1	Fail	Fail	Fail	Pass	Fail
A2	Fail	Fail	Fail	Pass	Fail
A3	Fail	Pass	Pass	Pass	Fail
A4	Pass	Pass	Pass	Pass	Pass
A5	Fail	Fail	Fail	Pass	Fail
A6	Pass	Fail	Pass	Pass	Fail
A7	Fail	Fail	Pass	Pass	Fail
A8	Pass	Pass	Pass	Pass	Pass
A9	Fail	Fail	Pass	Pass	Fail
A10	Pass	Pass	Pass	Fail	Fail
A11	Fail	Fail	Fail	Pass	Fail
A12	Fail	Fail	Fail	Pass	Fail
A13	Fail	Pass	Pass	Pass	Fail
A14	Pass	Fail	Pass	Pass	Fail
A15	Pass	Pass	Pass	Pass	Pass
A16	Fail	Pass	Fail	Pass	Fail
A17	Pass	Pass	Pass	Pass	Pass
A18	Pass	Fail	Pass	Pass	Fail
A19	Pass	Pass	Pass	Fail	Fail
A20	Fail	Pass	Pass	Pass	Fail
A21	Pass	Fail	Pass	Pass	Fail
A22	Pass	Pass	Pass	Pass	Pass
A23	Pass	Pass	Pass	Pass	Pass
A24	Pass	Pass	Pass	Pass	Pass
A25	Pass	Pass	Pass	Pass	Pass

Shaded locations pass success criteria in 2006.